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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/040,834

01/07/2002

Kazuhiro Ebara

P/1071-1521

2656

7590

08/25/2004

Keating & Bennett, LLP
10400 Eaton Place
Suite 312
Fairfax, VA 22030

EXAMINER

HANLEY, JOHN C


ART UNIT

PAPER NUMBER

2856

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/040,834	EBARA ET AL.	
	Examiner	Art Unit	
	John C Hanley	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,4,6,8 and 13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,4,6,8 and 13 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/25/02 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6/9/04</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Information Disclosure Statement

1. In the information disclosure statement filed on 6/9/04, the US Patent was not indicated as considered here, because it was indicated as considered in a prior filed statement.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the capacitor or inductor alternatives for the load impedances in Claim 13 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and

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informed of any required corrective action in the next Office action.
The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 13 is objected to because of the following informalities:
The capacitor and inductor subject matter is not depicted in the drawings. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. Claims 2, 4, 6, 8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebara et al, for reasons set forth in prior office actions. Ebara et al shows all of the structure recited in applicant's claims, except a specific recitation that the changeable resistors 18a and 18b are variable resistors, and the specific relative values recited. As previously stated by the examiner, Ebara et al states, "By changing the impedances of the resistors, the characteristics of the vibration gyroscope is adjusted." Therefore, Ebara et al clearly teaches that the resistors are changeable. It would have been obvious to one of ordinary skill in the art to make a resistor changeable by using a variable resistor. Applicant's remarks have been read and considered, but are unpersuasive. One of ordinary skill in the art would recognize that the four impedances of Ebara et al is a balanced bridge arrangement, where null balancing of the bridge is desired at zero output of the sensors. Thus, it would have been obvious to one skilled in the art that to maintain balance at the output, the load impedances would have to be adjusted to correspond with the values of the transducer impedances.

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5. Claims 2, 4, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebara et al in view of Smith or Johnson. These claims are believed to be obvious to one of ordinary skill in the art in view of Ebara et al, alone, as set forth above. However, applicant has demanded further evidence of the examiners assertions. Smith is a textbook showing of balanced bridge measurements, showing the relative values of impedances to balance a bridge. Similarly, Johnson shows the use of variable resistances in 18 and 19 to balance a bridge, and further teaches to do it for temperature characteristics of the bridge. Thus, it would have been obvious to balance the bridge of Ebara et al by adjusting the relative values of the bridge to null the output of the bridge, as taught in Smith or Johnson.

6. Applicant argues that Ebara et al requires the same values of load impedances. One skilled in the art would not accept this argument. One skilled in the art would recognize that this condition is ONLY suitable when the impedances of the piezoelectric elements are matched, as recognized by applicant in the first paragraph of page 10 of the disclosure. However, as this condition is difficult to achieve in the real world, calibration of the balance of the bridge by varying the respective relative values of the resistors in the manner recited in the claims would have been obvious to balance the bridge under less ideal conditions normally encountered, as one of ordinary skill in the art would clearly recognize. Further, the Examiner does not regard the phrase "in a matching condition" to be so limited to equal load impedances, as applicant asserts. The matching condition is clearly one that, taken in view of the inherent bridge arrangement, matches the load impedances to the transducer impedances to create a balanced bridge. Adjustment of such a bridge would inherently be performed by

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measurements as claimed to balance the inputs to the differential amplifier for the desired output of the differential amplifier. Such matching conditions would also inherently require the same impedances, i.e., resistive, capacitive, and/or inductive, in the load as the transducers. As Smith and Johnson were cited merely to back up the Examiner's contention that the nature of balanced bridges is well known and well characterized to the extent that one skilled in the art would obviously recognize how to trim the circuit of Ebara et al in the manner recited by applicant, applicant's arguments that neither Smith nor Johnson hint at making corrections as taught in Applicant's claim 2 is not persuasive. It is clearly obvious that to correct balance, either one or both of the load impedances must be adjusted to match the corresponding transducer impedance in the corresponding leg of the bridge.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

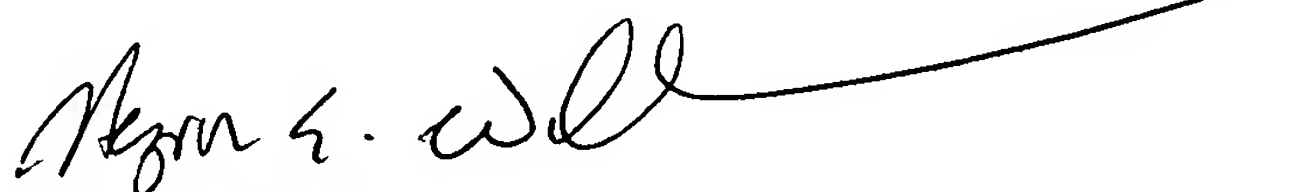
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to John C Hanley whose telephone number is 571-272-2195. The examiner can normally be reached on M-F 9AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCH



HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800